

## University of Groningen

### Determinants of receiving mental health care for depression in older adults

Holvast, Floor; Verhaak, Peter F. M.; Dekker, Janny H.; de Waal, Margot W. M.; van Marwijk, Harm W. J.; Penninx, Brenda W. J. H.; Comijs, Hannie

*Published in:*  
Journal of Affective Disorders

*DOI:*  
[10.1016/j.jad.2012.05.029](https://doi.org/10.1016/j.jad.2012.05.029)

**IMPORTANT NOTE:** You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

*Document Version*  
Publisher's PDF, also known as Version of record

*Publication date:*  
2012

[Link to publication in University of Groningen/UMCG research database](#)

*Citation for published version (APA):*

Holvast, F., Verhaak, P. F. M., Dekker, J. H., de Waal, M. W. M., van Marwijk, H. W. J., Penninx, B. W. J. H., & Comijs, H. (2012). Determinants of receiving mental health care for depression in older adults. *Journal of Affective Disorders*, 143(1-3), 69-74. <https://doi.org/10.1016/j.jad.2012.05.029>

#### Copyright

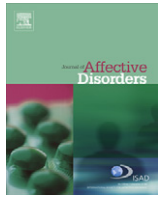
Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

#### Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

*Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.*



## Research report

# Determinants of receiving mental health care for depression in older adults



Floor Holvast<sup>a,\*</sup>, Peter F.M. Verhaak<sup>a,b</sup>, Janny H. Dekker<sup>a</sup>, Margot W.M. de Waal<sup>c</sup>, Harm W.J. van Marwijk<sup>d</sup>, Brenda W.J.H. Penninx<sup>e,f,g</sup>, Hannie Comijs<sup>g</sup>

<sup>a</sup> Department of General Practice, University Medical Center Groningen, A. Deusinglaan 1, 9713 AV Groningen, Netherlands

<sup>b</sup> Mental Health and Primary Care, NIVEL, Netherlands Institute of Health Services Research, Netherlands

<sup>c</sup> Department of Public Health and Primary Care, Leiden University Medical Center, Leiden, Netherlands

<sup>d</sup> Department of General Practice and the EMGO Institute of Health and Care Research, VU University Medical Center, Amsterdam, Netherlands

<sup>e</sup> Department of Psychiatry University Medical Center Groningen, Groningen, Netherlands

<sup>f</sup> Department of Psychiatry, Leiden University Medical Center, Leiden, Netherlands

<sup>g</sup> Department of Psychiatry and EMGO Institute for Health and Care Research, VU University Medical Center, Amsterdam, Netherlands

## ARTICLE INFO

## Article history:

Received 28 December 2011

Received in revised form

26 May 2012

Accepted 27 May 2012

Available online 5 August 2012

## Keywords:

Depressive disorder/Depression

Aged

Health care delivery/Mental health services

Primary care

## ABSTRACT

**Background:** Major Depressive Disorder (MDD) is common among elderly people. However, it appears that only a minority receives treatment. This study aims to identify and analyse the factors that determine whether elderly people with depressive disorders have contact with health care professionals for mental problems.

**Method:** Cross-sectional analysis of cohort data collected in the Netherlands Study of Depression in Older persons (NESDO) and the Netherlands Study of Depression and Anxiety (NESDA) among 167 respondents aged  $\geq 55$  with a depressive disorder as indicated by the CIDI. Contacts for mental health problems during the past six months (TiC-P), and indicators of predisposing, enabling, and objective need factors were assessed by interview.

**Results:** Of the total sample, 70% had contact for mental health problems, almost entirely within primary care (62%). The odds of having contact increased with advancing age; for respondents born in the Netherlands; for those who felt less lonely; and for those with a higher household income.

**Limitations:** Our study is based on base-line interviews and thus has a cross-sectional character. Therefore, causal conclusions cannot be drawn. Furthermore, we studied the respondents' perception whether mental health care was received.

**Conclusions:** The contact rate for mental health problems is high. Health care professionals should be aware that having contact is not associated with a higher objective need, but rather with increasing age, being Dutch-born, being less lonely and having a higher household income.

© 2012 Elsevier B.V. All rights reserved.

## 1. Introduction

Depression is a common and chronic disorder among older people; 14% of the elderly visiting their general practitioner (GP) meet the diagnostic criteria for Major Depressive Disorder (MDD) (Licht-Strunk et al., 2005; Licht-Strunk et al., 2009). However, there is ambiguity in this observation. Late life is associated with losing close relatives, experiencing physical decline, and a reduction in daily tasks due to retirement; events known to make people vulnerable to depressive feelings, but also seen as normal life events for this age group by elderly people and GPs (Burroughs et al., 2006; Prins et al., 2008). Older people tend to view mild-to-moderate mood problems as part of the aging process and they believe in the importance of self-reliance to deal with such problems (Meadows

et al., 2002; Robb et al., 2003; Wetherell et al., 2004); therefore the perceived need for mental health care may decrease with increasing age (Garrido et al., 2009; Klap et al., 2003). Furthermore, it is suggested that among elderly people common physical symptoms potentially related to depression (loss of appetite, sleep disturbance, or fatigue) are more often attributed to comorbid physical problems than to a depressive disorder compared to younger patients (Wetherell et al., 2004). As a result, only a minority of cases of depression among elderly is recognised and treated (Beekman et al., 1997; Crawford et al., 1998).

The Behavioural Model, developed by Andersen (1995), is a health care utilisation model, in which the use of health services is considered to be determined by three groups of factors, namely need, enabling, and predisposing factors. The 'predisposition' for service use refers to socio-demographic characteristics, personality, and social environment (Andersen, 2008; Leaf et al., 1988; Verhaak et al., 2009). Variables such as access to services,

\* Corresponding author. Tel.: +31 503633514.

E-mail address: [f.holvast@alumnus.rug.nl](mailto:f.holvast@alumnus.rug.nl) (F. Holvast).

geographical distance, income, financial barriers and insurance coverage are considered to be enabling factors. The 'need' factors refer to the clinical need for service use. These factors can be dichotomised as patients' perception (the perceived or subjective need for care) and the need for care as assessed by the clinician (clinical or objective need for care) (Andersen, 2008; Leaf et al., 1988; Verhaak et al., 2009).

This study examines which predisposing, enabling, and need factors are associated with having contact for mental health problems among depressed older adults in primary care. Such knowledge may help to improve the accessibility of mental health care for elderly people.

## 2. Methods

### 2.1. Study sample

Data on the use of health services were derived from the Netherlands Study of Depression in Older persons (NESDO; age  $\geq 60$  years (Comijs et al., 2011)) and the Netherlands Study of Depression and Anxiety (NESDA; age 18–65 years (Penninx et al., 2008)). Both studies are prospective cohort studies designed to examine the course and consequences of depression, as well as determinants of course and consequences. NESDO and NESDA use the same design and have included the same or comparable instruments. The study protocols of both studies were approved by the Ethical Review Board of the VU Medical Center and subsequently by local review boards of each participating centre. After providing information about the study, including aims and consequences, a written informed consent from each participant was obtained. For the current analyses, we used all NESDO patients and NESDA patients of 55 years and older who had a DSM IV depressive disorder and were recruited from primary care (NESDO  $n=50$ , NESDA  $n=117$ ).

The recruitment of participants from primary care practices in and around Amsterdam, Groningen, and Leiden was conducted via a screening procedure. All patients who had visited their GP in the previous four months, irrespective of the reason, were sent a short questionnaire (NESDO: Geriatric Depression Scale (D'Ath et al., 1994); NESDA: Kessler 10 extended by 5 anxiety questions (Kessler et al., 2003)). In NESDO, the sample comprised persons who were referred by their GP for depressive complaints. For patients with a positive screening result ( $GDS \geq 4$ ; Kessler  $\geq 20$ ), this was followed by a telephone interview consisting of the Composite International Diagnostic Interview (CIDI) core questions on major depressive disorder (MDD) and dysthymia (Andrews and Peters, 1998). Those who fulfilled the criteria for a current depressive disorder during the telephone screening interview were invited to participate in NESDO or NESDA. Baseline assessment included a complete CIDI, together with other interviews and questionnaires. Those who fulfilled the CIDI-criteria for MDD or dysthymia during the past six months were included.

The current sample consists of 167 respondents with depression, with a mean age of 61.9 (range: 55–87) and of whom 35.3% is male. 109 respondents with MDD were included, 11 with dysthymia, and 47 with both MDD and dysthymia.

### 2.2. Measures

#### 2.2.1. Dependent variable

Contact for mental health problems was assessed by the TiC-P (Trimbos/IMTA questionnaire for costs associated with psychiatric illness) (Hakkaert-Van Roijen et al., 2002). This questionnaire

assesses whether respondents had any contact with a care provider for mental health problems during the past six months (contact versus no contact). Subsequently, the type of care provider(s) was specified. We differentiated between (a) primary mental health care providers (general practitioner, social worker, primary care psychologist, and psychiatric nurse), (b) specialised mental health care providers (ambulatory mental health care, psychiatrist, psychotherapist, alcohol/drugs department), and (c) other medical care for psychological help (medical specialist, company doctor).

#### 2.2.2. Independent variables

**2.2.2.1. Predisposing characteristics.** Socio-demographic and socio-economic information was gathered, regarding age, gender, marital status, ethnicity, and education level. Personality was measured using the NEO personality questionnaire (Costa and McCrae, 1995), a 60-item questionnaire assessing the five personality domains of neuroticism, extraversion, agreeableness, conscientiousness, and openness to experience. Degree of loneliness and mastery (locus of control) were determined by the De Jong-Gierveld Loneliness scale and the Pearlin Mastery scale, respectively (De Jong-Gierveld and van Tilburg, 2008; Pearlin et al., 1981).

**2.2.2.2. Enabling characteristics.** Urbanisation level was analysed as an enabling characteristic, since a high urbanisation level is related to a plentiful supply of institutions and providers of mental health care. In addition, the respondents' income and social network size (network of persons  $> 18$  years with regular and important contact) were assessed during the baseline interview.

**2.2.2.3. Need characteristics.** Objective need for care was indicated by DSM-IV diagnoses, severity of symptoms and the presence of psychiatric comorbidity. A number of anxiety disorders were included as comorbid psychiatric conditions. Diagnoses of anxiety and affective disorders were assessed by the CIDI, the severity of depressive symptoms by the Inventory of Depressive Symptoms (IDS) (Rush et al., 1996), and the severity of anxiety symptoms by the Beck Anxiety Inventory (BAI) (Beck et al., 1988). The number of chronic conditions for which medical treatment was received was used as an index of somatic comorbidity.

### 2.3. Analytic strategy

This sample was divided into persons who had contact with any care provider for mental health problems during the previous six months versus those who did not. Univariate tests (Chi-square, Mann-Whitney U-test, Student's t-test) were performed on each of the predisposing, enabling, and need determinants described above. Subsequently, as the dependent variable is binary (contact versus no contact), a stepwise logistic regression analysis was performed involving all determinants with a significant effect in the univariate tests, with forward inclusion of variables in the model. As a result, only those variables which significantly improve the quality of the model were included. First, relevant predisposing characteristics were entered, followed by enabling characteristics, and finally need variables. In this study,  $p$ -values of  $< 0.05$  were considered to be significant. SPSS software was used for the statistical analysis.

### 3. Results

#### 3.1. Use of mental health services

Table 1 shows the use of services for mental health problems. 70% of the respondents reported having had contact concerning psychological problems in the previous 6 months, with an important role for the GP with whom 51% had contact. 13.2% had contact with specialised mental health care services and 9.2% had contact with other medical specialists/company doctors for their psychological problems.

#### 3.2. Determinants of contact for mental health problems

Table 2 shows the characteristics of respondents who had contact with any care provider ( $N=117$ ) versus those who did not ( $N=50$ ). Respondents who had contact for mental health problems tended to be older, were more likely to be born in the Netherlands, and had a household income of > 1600 Euros per month. They were less neurotic, they scored lower on the loneliness scale—indicating greater satisfaction with the number of and/or intimacy in relationships evaluated—and had a more extensive social network. The group who reported contact was less likely to suffer from social phobia.

In multivariate logistic regression analyses the odds of having contact increased with age (OR: 1.07; 95%CI: 1.00–1.15) and for respondents born in the Netherlands (OR: 3.17; 95%CI: 1.18–8.52). The odds decreased when respondents reported loneliness (OR: 0.90; 95%CI: 0.83–1.00) and when they had a household income of ≤ 1600 Euros per month (OR: 0.48; 95%CI: 0.23–1.00) (see Table 3). The other variables which significantly differed in univariate analysis did not significantly improve the model for having contact for mental health problems and were therefore not entered in the logistic regression analyses. As a result, the third step was not performed since social phobia did not improve the model.

### 4. Discussion

Our study shows that 70% of the patients with a depressive disorder who recently visited their GP had discussed mental health problems, almost exclusively within primary care, with an important role for their GP. Almost 30% did not discuss mental health problems with any care provider. The odds of having contact increased with age, for respondents who are Dutch-born,

**Table 2**

Characteristics of respondents who had contact versus respondents who had no contact for mental health problems.

	Contact	
	Yes	No
<i>N</i>	117	50
<b>Predisposing</b>		
Age (mean (± SD))	62.5 (± 7.2) <sup>a</sup>	60.5 (± 4.9) <sup>a</sup>
55–64 years ( <i>n</i> (%))	90 (76.9)	47 (94.0)
65–74 years ( <i>n</i> (%))	16 (13.7)	2 (4.0)
≥ 75 years ( <i>n</i> (%))	11 (9.4)	1 (2.0)
Gender (male, <i>n</i> (%))	41 (35.0)	18 (36.0)
Marital status ( <i>n</i> (%))		
Never married	14 (12.3)	7 (14.6)
Married/ living together	63 (55.3)	24 (50.0)
Divorced	26 (22.8)	15 (31.2)
Widow(er)	11 (9.6)	2 (4.2)
Born in the Netherlands ( <i>n</i> (%))	106 (90.6) <sup>a</sup>	39 (78.0) <sup>a</sup>
Basic education ( <i>n</i> (%))	19 (16.2)	5 (10.0)
Intermediate education ( <i>n</i> (%))	67 (57.3)	30 (60.0)
High education ( <i>n</i> (%))	31 (26.5)	15 (30.0)
Personality (mean (± SD))		
Neuroticism	37.8 (± 11.0) <sup>a</sup>	41.3 (± 6.3) <sup>a</sup>
Extraversion	32.5 (± 10.6)	30.8 (± 7.0)
Agreeableness	39.8 (± 12.4)	40.2 (± 6.1)
Conscientiousness	35.0 (± 10.5)	35.6 (± 6.3)
Openness	28.2 (± 9.2)	30.0 (± 4.7)
Loneliness (mean (± SD))	5.4 (± 4.1) <sup>b</sup>	7.0 (± 3.6) <sup>b</sup>
Mastery (mean (± SD))	15.4 (± 6.7)	16.0 (± 6.9)
<b>Enabling</b>		
Household income ≤ 1600/ month ( <i>n</i> (%))	39 (33.6) <sup>a</sup>	25 (53.2) <sup>a</sup>
Very urban ( <i>n</i> (%))	85 (72.6)	37 (74.0)
Social network ≤ 5 members ( <i>n</i> (%))	69 (59.5) <sup>a</sup>	40 (80.0) <sup>a</sup>
<b>Need</b>		
Type affective disorder ( <i>n</i> (%))		
MDD	77 (65.8)	32 (64.0)
Dysthymia	6 (5.1)	5 (10.0)
Double diagnosis (MDD+dysthymia)	34 (29.1)	13 (26.0)
Depression severity (mean IDS (± SD))	31.3 (± 11.6)	32.1 (± 9.0)
Co morbidity ( <i>n</i> (%))		
GAD	29 (24.8)	14 (28.0)
Social phobia	23 (19.7) <sup>a</sup>	17 (34.0) <sup>a</sup>
Panic with agoraphobia	18 (15.4)	6 (12.0)
Panic without agoraphobia	9 (7.7)	1 (2.0)
Agoraphobia	11 (9.4)	9 (18.0)
Anxiety severity (mean BAI (± SD))	12.8 (± 10.8)	13.2 (± 9.8)
# chronic somatic disorders (mean (± SD))	1.0 (± 1.2)	0.7 (± 1.0)

<sup>a</sup>  $P < 0.05$ .

<sup>b</sup>  $P < 0.01$ .

**Table 1**

Professional help received for mental problems in the past 6 months.

Professional help received	<i>N</i>	%
Any contact	117	70.1
Primary care	103	61.7
General practitioner	85	50.9
Social work	11	6.6
Primary care psychologist	20	12.0
Psychiatric nurse	4	2.4
Specialist mental health care	22	13.2
Ambulatory mental health care	9	5.4
Psychiatrist	12	7.2
Psychotherapist	5	3.0
Alcohol/ drugs department	2	1.2
Medical care	16	9.2
Medical specialist <sup>a</sup>	3	1.8
Company doctor <sup>a</sup>	14	8.4
No contact at all	50	29.9

<sup>a</sup> For psychological help.

who are less lonely, and who have a high household income. None of the need characteristics were associated with having contact.

The percentage of respondents (70%) who reported that mental health topics had been discussed was remarkably high. This refutes the common belief that elderly people have a low perceived need for mental health care (Garrido et al., 2009; Klap et al., 2003; Meadows et al., 2002), particularly when we compare these results to those in a previous study that showed a contact rate of 50% for mental health problems among adults aged 18–65 (Verhaak et al., 2009). Elderly people seem to be more inclined to report that mental health problems have been discussed, regardless of perceived need. This may be typical for the general practice setting; elderly people may come into contact with their GP due to other physical complaints and in this situation a GP often briefly refers to psychosocial factors. A previous study revealed that elderly people tend to be satisfied with the services offered (Beekman et al., 1997). Primary care, and especially the GP's surgery, appears to be the most important setting for elderly people to discuss mental health problems. The important role we



**Table 3**

Results of multivariate regression analysis on having contact with any care provider.

(Reference category)	Step 1		Step 2	
	Odds ratio	95% confidence interval	Odds ratio	95% confidence interval
<b>Predisposing</b>				
Age	1.07	1.00–1.15	1.07	1.00–1.15
Born in the Netherlands ( <i>not born in Netherlands</i> )	2.92	1.10–7.79	3.17	1.18–8.52
Loneliness	0.89	0.81–0.98	0.91	0.83–1.00
Neuroticism	Not part of the equation <sup>a</sup>		Not part of the equation <sup>a</sup>	
<b>Enabling</b>				
Income ≤ 1600/ month (> 1600/month)			0.48	0.23–1.00
Social network ≤ 5 members (> 5 persons)			Not part of the equation <sup>a</sup>	
<b>Need</b>				
Social phobia ( <i>positive</i> )			Not part of the equation <sup>a</sup>	

<sup>a</sup> No significant improvement of the model, therefore these variables are not entered.

found for the GP in this respect is in line with existing knowledge (Arean et al., 2002; Robb et al., 2003). However, it should be considered that elderly are less likely to be referred to specialized mental health care, as was shown by previous research (Verhaak et al., 2010).

Previous studies focusing on the difference between younger and older adults regarding mental health treatment showed declining odds with increasing age (Klap et al., 2003; Meadows et al., 2002; Prins et al., 2008). We found increased odds of discussing mental health problems with a care provider with increasing age. Although our finding seems reassuring, it should be noted that we studied discussing mental health problems and not receiving treatment for mental health problems. Furthermore, this reassuring finding could have been induced by the overrepresentation of the youngest age group (55–64), since aging in this group of younger elderly is associated with a reduction in tasks due to retirement and experiencing physical decline: factors known to make people vulnerable to depressive feelings (Burroughs et al., 2006; Prins et al., 2008). However, we also found a high contact rate for mental health problems (92%) in the oldest age group (> 75), indicating that elderly people do indeed have adequate opportunity to discuss mental health problems.

These findings—a high contact rate and increasing odds with increasing age—seem promising. However, it should be noted that mental health problems may only have been discussed briefly, as opposed to thorough treatment being offered. This is even more likely, since it is known that elderly people greatly underutilise mental health care facilities and that elderly patients are less critical than younger patients of the services offered (Beekman et al., 1997; Robb et al., 2003).

None of the need variables had a significant association with having contact for mental health problems. Moreover, the presence of psychiatric comorbidity did not have a significant effect in multivariate analyses. Clinical need is of less decisive importance for discussing mental health problems in the elderly compared with adults aged 18–65 (Verhaak et al., 2009). This is probably explained by the fact that the presence of depressive symptoms and meeting the diagnostic criteria for a depressive disorder do not result in a perceived need or willingness to seek help in elderly people (Allen et al., 1998; Klap et al., 2003; Meadows et al., 2002). Health care providers, especially within primary care, should be aware that help-seeking behaviour in elderly people may not be determined by clinical need, but by other factors.

It is disturbing that there are quite a number of predisposing and enabling factors which ensure a disadvantaged position with regard to having contact. Elderly people within ethnic minorities and those with a low household income are less likely to have had contact for mental health problems. These differences were not found among younger people suffering from depression (Verhaak et al., 2009).

Furthermore, elderly people who are lonely are particularly at risk of abstaining from help-seeking. It is already known that they are more at risk of developing a depressive disorder (Beekman et al., 1995; Huang et al., 2011; Vink et al., 2009), and this disorder is more likely to have an unfavourable prognosis (Bosworth et al., 2002; Steunenberg et al., 2007; Steunenberg et al., 2010). In addition, this study shows that lonely elderly people are relatively less likely to have contact for mental health problems. Primary care providers should be aware of this negative effect, especially since social isolation is common amongst elderly people, and increases with advancing age (Iliffe et al., 2007). Loneliness was more frequently found in the most urbanized area ( $p < 0.004$ ) that was considered more enabling because of the supply of mental health services. However, urbanisation did not have a relationship with mental health care contacts. Especially general practitioners in large city areas should be aware of this risk of lonely people not to seek contact for mental health care problems.

As described in the introduction, general practitioners recognise depression only in a minority of the cases. Among older general practitioner attendees a 50% recognition rate has been described, and only 38% of the patients who were recognised, was treated with either antidepressant medication or referral to a mental health care service (Crawford et al., 1998). However, GPs appear to be aware of the presence of mental distress to a higher degree than they make registration notes of it (Joling et al., 2011). Nevertheless, it is essential that GPs are aware of the relatively high prevalence of depressive disorders in the elderly and their poor recognition of these disorders. Awareness may increase recognition rate. Furthermore, since GP consultation time may be limited, we might expect that GPs prescribe antidepressant medication rather than counselling, resulting in greater unmet need for counselling and greater met need for medication (Prins et al., 2009). Therefore, the implication of a mental health nurse/social worker in the general practice can result in a greater met need for counselling, and simultaneously conserves the easy accessible character of the general practice. Collaborative care models have shown to be effective in the treatment of depression (Unutzer, 2002). This could be recommended for the general practise setting.

This study has several limitations. First of all, respondents were asked whether they had discussed mental health problems with a care provider. In other words, we studied the respondent's perception whether mental health care was received, a rather important goal. However, we did not examine whether an affirmative answer involved briefly mentioning mental health problems or actually receiving treatment. Moreover, we depended on the respondent adequately remembering the quantity and aspects of contacts in the past six months. However, we

have no reason to doubt this (interviewers did not experience this, and respondents with a Mini Mental State Examination-score under 18 (out of 30) were excluded, as described in the study protocol of NESDO (Comijs et al., 2011)).

We focussed on DMV IV criteria for depressive disorders and severity indices. We did not examine the effect of the judgement of the care provider or the level of clinical need.

During the inclusion process only those patients who did have contact with their GP in the past four months were contacted. Therefore, our contact rate might be an overestimation of the entire primary care population.

Both samples (NESDO and NESDA) were derived from GP practises in and around the three participating university centres (Amsterdam, Groningen and Leiden). As a result, respondents from highly urbanised areas were overrepresented which may hamper the generalisability of our findings to more rural areas.

Our study is based on a relatively small sample size which also could influence the generalisability of our results. We tested the strength of our results by bootstrapping the standard error with 1000 repetitions, which resulted in similar associations. Being Dutch-born and being less lonely remain significantly associated with having contact with a mental health care provider. The effect of age and of income rise just above the significance level of 0.05, however, the same trend was observed. The research is founded on baseline interviews and thus has a cross-sectional character. Therefore, causal conclusions cannot be drawn.

Given these limitations, our conclusions are based on relatively large databases, created using standardised procedures and which can be considered representative for the average urban primary care population of elderly people.

In general, elderly people believe that they are very unlikely to suffer from a depressive disorder (Allen et al., 1998). They, and their GP, tend to think that mild-to-moderate mood disorders are part of this phase of life (Prins et al., 2008; Robb et al., 2003; Wetherell et al., 2004). However, in the present study, 70% of the elderly people report that mental health problems have been discussed, mainly with their GP. This may be typical for the general practice situation. The GP is easily accessible for discussing mental health difficulties briefly, without the need for the patient to feel labelled as suffering from a mental health problem.

Since most elderly people contact their GP for mental health problems, primary care providers, and especially GPs, should be aware of the disadvantaged position of elderly people in ethnic minority groups, those who are lonely, and those with a low household income. Furthermore, primary care providers should be aware that in the elderly clinical need variables are outweighed by other factors in determining the odds of having contact. This could improve mental health care for elderly in order to decrease the burden of depressive disorders and to increase the prognostic course.

#### Role of funding source

The funding source had no involvement on this manuscript.

#### Conflict of interest

None of the authors can report any potential conflict of interest.

#### Acknowledgements

The infrastructure for the NESDO study (<http://nesdo.amstad.nl>) is funded through the Fonds NutsOhra, Stichting tot Steun VCVGZ, NARSAD The Brain and Behaviour Research Fund, and the participating universities and mental health care organizations.

The infrastructure for the NESDA study is funded through the Geestkracht program of the Dutch Scientific Organization (ZON-MW, grant number 10-000-1002) and matching funds from participating Universities and mental health care organizations.

#### References

- Allen, R., Walker, Z., Katona, C., 1998. Attitudes to depression in hospital inpatients: a comparison between older and younger subjects. *Aging & Mental Health* 2, 36–39.
- Andersen, R.M., 1995. Revisiting the behavioral model and access to medical care: does it matter? *Journal of Health and Social Behavior* 36, 1–10.
- Andersen, R.M., 2008. National health surveys and the behavioral model of health services use. *Medical care* 46, 647–653.
- Andrews, G., Peters, L., 1998. The psychometric properties of the Composite International Diagnostic Interview. *Social Psychiatry and Psychiatric Epidemiology* 33, 80–88.
- Arean, P.A., Alvidrez, J., Barrera, A., Robinson, G.S., Hicks, S., 2002. Would older medical patients use psychological services? *Gerontologist* 42, 392–398.
- Beck, A.T., Epstein, N., Brown, G., Steer, R.A., 1988. An inventory for measuring clinical anxiety: psychometric properties. *Journal of Consulting and Clinical Psychology* 56, 893–897.
- Beekman, A.T., Deeg, D.J., Braam, A.W., Smit, J.H., van, T.W., 1997. Consequences of major and minor depression in later life: a study of disability, well-being and service utilization. *Psychological Medicine* 27, 1397–1409.
- Beekman, A.T., Deeg, D.J., van, T.T., Smit, J.H., Hooijer, C., van, T.W., 1995. Major and minor depression in later life: a study of prevalence and risk factors. *Journal of Affective Disorders* 36, 65–75.
- Bosworth, H.B., Hays, J.C., George, L.K., Steffens, D.C., 2002. Psychosocial and clinical predictors of unipolar depression outcome in older adults. *International Journal of Geriatric Psychiatry* 17, 238–246.
- Burroughs, H., Lovell, K., Morley, M., Baldwin, R., Burns, A., Chew-Graham, C., 2006. 'Justifiable depression': how primary care professionals and patients view late-life depression? A qualitative study. *Family Practice* 23, 369–377.
- Comijs, H.C., Van Marwijk, H.W., van der Mast, R.C., Naarding, P., Oude Voshaar, R.C., Beekman, A.T., Boshuizen, M., Dekker, J., Kok, R., De Waal, M.W., Penninx, B.W., Stek, M.L., Smit, J.H., 2011. The Netherlands study of depression in older persons (NESDO); a prospective cohort study. *BMC Research Notes* 4, 524.
- Costa Jr., P.T., McCrae, R.R., 1995. Domains and facets: hierarchical personality assessment using the revised NEO personality inventory. *Journal of Personality Assessment* 64, 21–50.
- Crawford, M.J., Prince, M., Menezes, P., Mann, A.H., 1998. The recognition and treatment of depression in older people in primary care. *International Journal of Geriatric Psychiatry* 13, 172–176.
- D'Ath, P., Katona, P., Mullan, E., Evans, S., Katona, C., 1994. Screening, detection and management of depression in elderly primary care attenders. I: the acceptability and performance of the 15 item Geriatric Depression Scale (GDS15) and the development of short versions. *Family Practice* 11, 260–266.
- De Jong-Gierveld, J., van Tilburg, T., 2008. A shortened scale for overall, emotional and social loneliness. *Tijdschrift Voor Gerontologie En Geriatrie* 39, 4–15.
- Garrido, M.M., Kane, R.L., Kaas, M., Kane, R.A., 2009. Perceived need for mental health care among community-dwelling older adults. *Journals of Gerontology Series B, Psychological Sciences and Social Sciences* 64, 704–712.
- Hakkaart-Van Roijen, L., Van Straten, A., Donker, M., 2002. Instituut voor Medische Technology Assessment, Erasmus Universiteit Rotterdam. Handleiding Trimbos/iMTA questionnaire for Costs associated with Psychiatric Illness (TIC-P). Rotterdam.
- Huang, J.F., Wong, R.H., Chen, C.C., Mao, I.F., Huang, C.C., Chang, W.H., Wang, L., 2011. Trajectory of depression symptoms and related factors in later life—a population based study. *Journal of Affective Disorders* 133, 499–508.
- Iliffe, S., Kharicha, K., Harari, D., Swift, C., Gillmann, G., Stuck, A.E., 2007. Health risk appraisal in older people 2: the implications for clinicians and commissioners of social isolation risk in older people. *British Journal of General Practice* 57, 277–282.
- Joling, K.J., van Marwijk, H.W., Piek, E., van der Horst, H.E., Penninx, B.W., Verhaak, P., van Hout, H.P., 2011. Do GPs' medical records demonstrate a good recognition of depression? A new perspective on case extraction. *Journal of Affective Disorders* 133, 522–527.
- Kessler, R.C., Barker, P.R., Colpe, L.J., Epstein, J.F., Gfroerer, J.C., Hiripi, E., Howes, M.J., Normand, S.L., Manderscheid, R.W., Walters, E.E., Zaslavsky, A.M., 2003. Screening for serious mental illness in the general population. *Archives of General Psychiatry* 60, 184–189.
- Klap, R., Unroe, K.T., Unutzer, J., 2003. Caring for mental illness in the United States: a focus on older adults. *American Journal of Geriatric Psychiatry* 11, 517–524.
- Leaf, P.J., Bruce, M.L., Tischler, G.L., Freeman Jr., D.H., Weissman, M.M., Myers, J.K., 1988. Factors affecting the utilization of specialty and general medical mental health services. *Medical Care* 26, 9–26.
- Licht-Strunk, E., van der Kooij, K.G., van Schaik, D.J., Van Marwijk, H.W., van Hout, H.P., de, H.M., Beekman, A.T., 2005. Prevalence of depression in older patients consulting their general practitioner in The Netherlands. *International Journal of Geriatric Psychiatry* 20, 1013–1019.
- Licht-Strunk, E., Van Marwijk, H.W., Hoekstra, T., Twisk, J.W., de, H.M., Beekman, A.T., 2009. Outcome of depression in later life in primary care: longitudinal cohort study with three years' follow-up. *BMJ* 338, a3079.
- Meadows, G., Burgess, P., Bobevski, I., Fossey, E., Harvey, C., Liaw, S.T., 2002. Perceived need for mental health care: influences of diagnosis, demography and disability. *Psychological Medicine* 32, 299–309.
- Pearlin, L.I., Lieberman, M.A., Menaghan, E.G., Mullan, J.T., 1981. The stress process. *Journal of Health and Social Behavior* 22, 337–356.

- Penninx, B.W., Beekman, A.T., Smit, J.H., Zitman, F.G., Nolen, W.A., Spinhoven, P., Cuijpers, P., De Jong, P.J., Van Marwijk, H.W., Assendelft, W.J., Van Der, M.K., Verhaak, P., Wensing, M.De.G.R., Hoogendijk, W.J., Ormel, J., Van, D.R., 2008. The Netherlands Study of Depression and Anxiety (NESDA): rationale, objectives and methods. *International Journal of Methods in Psychiatric Research* 17, 121–140.
- Prins, M.A., Verhaak, P.F., Bensing, J.M., Van Der Meer, K., 2008. Health beliefs and perceived need for mental health care of anxiety and depression—the patients' perspective explored. *Clinical Psychology Review* 28, 1038–1058.
- Prins, M.A., Verhaak, P.F., Van Der Meer, K., Penninx, B.W., Bensing, J.M., 2009. Primary care patients with anxiety and depression: need for care from the patient's perspective. *Journal of Affective Disorders* 119, 163–171.
- Robb, C., Haley, W.E., Becker, M.A., Polivka, L.A., Chwa, H.J., 2003. Attitudes towards mental health care in younger and older adults: similarities and differences. *Aging & Mental Health* 7, 142–152.
- Rush, A.J., Gullion, C.M., Basco, M.R., Jarrett, R.B., Trivedi, M.H., 1996. The Inventory of Depressive Symptomatology (IDS): psychometric properties. *Psychological Medicine* 26, 477–486.
- Steunenberg, B., Beekman, A.T., Deeg, D.J., Bremmer, M.A., Kerkhof, A.J., 2007. Mastery and neuroticism predict recovery of depression in later life. *The American Journal of Geriatric Psychiatry* 15, 234–242.
- Steunenberg, B., Beekman, A.T., Deeg, D.J., Kerkhof, A.J., 2010. Personality predicts recurrence of late-life depression. *Journal of Affective Disorders* 123, 164–172.
- Unutzer, J., 2002. Diagnosis and treatment of older adults with depression in primary care. *Biological Psychiatry* 52, 285–292.
- Verhaak, P., Beljouw, I.M.J., van Dijk, C.E., Nivel, U., 2010. Beleidsonderzoek GGZ: ondersteunende analyses.
- Verhaak, P.F., Prins, M.A., Spreeuwenberg, P., Draisma, S., van Balkom, T.J., Bensing, J.M., Laurant, M.G., Van Marwijk, H.W., Van Der Meer, K., Penninx, B.W., 2009. Receiving treatment for common mental disorders. *General Hospital Psychiatry* 31, 46–55.
- Vink, D., Aartsen, M.J., Comijs, H.C., Heymans, M.W., Penninx, B.W., Stek, M.L., Deeg, D.J., Beekman, A.T., 2009. Onset of anxiety and depression in the aging population: comparison of risk factors in a 9-year prospective study. *American Journal of Geriatric Psychiatry* 17, 642–652.
- Wetherell, J.L., Kaplan, R.M., Kallenberg, G., Dresselhaus, T.R., Sieber, W.J., Lang, A.J., 2004. Mental health treatment preferences of older and younger primary care patients. *International Journal of Psychiatry in Medicine* 34, 219–233.